



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

09/597,161 06/20/00 OKABE

I 025311/0105

EXAMINER

MM91/1003

FOLEY & LARDNER
3000 K STREET NW
WASHINGTON DC 20007-8696

DIAZ, J

ART UNIT

PAPER NUMBER

2815

DATE MAILED:

10/03/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/597,161

Applicant(s)

OKABE ET AL.

Examiner

José R. Díaz

Art Unit

2815

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Drawings

➤ The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: the reference sign "1a" in page 5, lines 12-13. Correction is required.

Specification

➤ The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

➤ Claims 1 and 4 objected to because of the following informalities: the term "assume(s) a value of..." should be changed to --about a value of--. Appropriate correction is required.

Claim Rejections.- 35 USC § 112

➤ The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

➤ Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 4-5 recites the limitation "forming a silicon-oxide-based film on a substrate directly or by way of another layer." This limitation makes the claim indefinite since it is not clear whether the Applicant intends to claim the layer recited in the limitation "or by way of another layer."

Claim 2 recites the limitation "the plasma CVD technique" in line 16. There is insufficient antecedent basis for this limitation in the claim.

Claim 3 recites the limitation "the surface" and "the silicon oxide film" in line 19. There is insufficient antecedent basis for this limitation in the claim.

Claim 5 recites the limitation "the resist pattern" in page 22, line 9. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

➤ The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

➤ Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Cheung et al. (EP 0 840 361 A2).

Regarding claims 1 and 5, Cheung et al. teach method for depositing a film over a substrate (see columns 1-24) comprising the steps of: forming a silicon-oxide-based film (240) on a substrate (200) (see Figure 3A and col. 5, lines 12-36); forming a chemically-amplified photoresist layer (220) (see Figure 3A and col. 5, lines 12-36); transferring a mask pattern onto the chemically-amplified photoresist layer (see Figure 3A and col. 5, lines 12-36); and etching the underlying layer (see Figure 3A and col. 5, lines 12-36).

Regarding claim 2, Cheung et al. teach that the silicon-oxide-based film is deposited at a temperature of 400 °C or more by means of the plasma CVD technique (see col. 19, lines 40-43 and col. 20, lines 29-31).

Regarding claim 3, Cheung et al. teach a further step of exposing the silicon oxide film to plasma atmosphere of O₂ or N₂O (see col. 5, lines 2-5; col. 19, lines 25-58 and col. 20, lines 1-59).

Regarding claim 4, Cheung et al. teach a device (see columns 1-24) comprising: a substrate (200) and a silicon-oxide-based film (240) (see Figure 3A).

Conclusion

➤ The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. D'Anna (US Pat. No. 5,001,083) discloses method of priming semiconductor substrate for subsequent photoresist masking and etching. Shields et al. (US Pat. No. 6,153,504) disclose method of using a silicon oxynitride ARC for final metal layer. Babcock et al. (US Pat. No. 6,255,717 B1) disclose shallow trench isolation using antireflection layer. Lee et al. (US Pat. No. 6,103,630) disclose method of etching metal lines. Yang et al. (US Pat. No. 6,004,853) disclose method for fabricating a gate structure. Sugiura et al. (US Pat. No. 5,719,072) disclose method of manufacturing a semiconductor using multi-layer antireflective layer.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to José R. Díaz whose telephone number is (703) 308-6078. The examiner can normally be reached on 8:00 - 5:00 Monday through Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JRD
September 30, 2001



EDDIE LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800